

Donna K. Slonim

Tufts University
161 College Avenue
Medford, MA 02155
(617) 627-2225
Donna.Slonim@tufts.edu
<http://www.cs.tufts.edu/~slonim>

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| Education | Massachusetts Institute of Technology 1996 Ph.D. in Computer Science, minor in Genetics, Advisor: Ron Rivest. Dissertation: <i>Learning from Imperfect Data in Theory and Practice</i> . |
| | University of California at Berkeley 1991 M.S. in Computer Science |
| | Yale University 1990 B.S. in Computer Science |
| Appointments | Tufts University 2005–present <i>Professor, 2016-</i> , Computer Science <i>Professor, 2016-</i> , Immunology <i>Genetics Faculty</i> , Sackler School of Graduate Biomedical Sciences <i>Associate Professor, 2005-2016</i> , Computer Science; Medicine |
| | Boston Children’s Hospital 2011-2012 <i>Visiting Associate Professor</i> , Medicine |
| | Wyeth Research (formerly Genetics Institute) 2000-2004 <i>Principal Scientist</i> , Bioinformatics |
| | MIT/Whitehead Institute Center for Genome Research 1996-2000 <i>Research Scientist</i> |
| Selected Professional Activities | NCBI Board of Scientific Counselors, Member, 2018-2022. Systems Theme Chair, <i>ISMB</i> 2016. Highlights Chair, <i>RECOMB</i> 2016. Scientific Advisory Board Member, <i>The Gene Ontology</i> , 2016-. Special Sessions Chair, <i>ISMB</i> 2014. NIH Reviewer, Modeling and Analysis of Biological Systems (MABS), June 2017; June 2014. Program Chair, <i>ACM-BCB</i> 2013. Advisory Board Member, <i>Mouse Genome Database</i> , The Jackson Laboratory, Bar Harbor, ME, 2012–2015. Gene Regulation Area Chair, <i>ISMB</i> 2012. Board of Directors, Int’l Society of Computational Biology, 2010 – 2013 and 2000 – 2003. Program Committee, <i>RECOMB</i> , 2015-2019, 2009 – 2011, and 1999 – 2001. NIH Reviewer, BioData Management and Analysis (BDMA), 3x 2007-2012. Session Chair, Dynamics of Biological Networks, <i>Pacific Sympos. Biocomputing (PSB)</i> , 2010. Associate Editor, <i>PLoS Computational Biology</i> , June 2008 – present. Editorial Board Member, <i>Journal of Biomedical Informatics</i> , November 2006 – January 2013. Editorial Board Member/Advisor, <i>BMC Bioinformatics</i> , May 2005 – March 2015. |

Teaching **Tufts University:** courses taught include Medford, MA

- an introductory bioinformatics course for undergraduates in the life sciences
- a senior/graduate course in algorithms for computational biology
- undergraduate data structures
- the introductory computer science class for majors
- graduate research seminars on research techniques and on biological networks

Selected Publications B Peters, SE Brenner, E Wang, D Slonim, MG Kann. Putting benchmarks in their rightful place: The heart of computational biology. *PLoS Comp. Biol.* 14 (11), e1006494, 2018.

CM Pietras, F Ocitti, DK Slonim. TEMPO: Detecting pathway-specific temporal dysregulation of gene expression in disease. *ACM-BCB* 2018:79-88.

Tarui T, Kim A, Flake A, McClain L, Stratigis J, Fried I, Newman R, Slonim DK, Bianchi DW. Amniotic fluid transcriptomics reflects novel disease mechanisms in fetuses with myelomeningocele. *Am J Obst & Gynec.*, 217(5):587, Nov. 2017.

Park J, Hescott BJ, Slonim DK. Towards a more molecular taxonomy of disease. *Journal of Biomedical Semantics*, Jul 27;8(1):25, 2017.

Slonim DK. Time is money: designing cost-effective time series experiments. *Cell Systems* 3(1):15-6, 2016.

Guedj F, Pennings JL, Ferres MA, Graham LC, Wick HC, Miczek KA, Slonim DK, Bianchi DW. The fetal brain transcriptome and neonatal behavioral phenotype in the Ts1Cje mouse model of Down syndrome. *Am J Med Genet Part A*, 167A(9):1993-2008, Sep. 2015.

Noto K, Majidi S, Edlow AG, Wick HC, Bianchi DW, Slonim DK. CSAX: characterizing systematic anomalies in expression data. *Journal of Comput. Biol.*, 22(5):402-13, 2015.

Park J, Wick HC, Kee DE, Noto K, Maron JL, Slonim DK. Finding novel molecular connections between developmental processes and disease. *PLoS CompBiol.*, 10(5):e1003578, 2014.

Wick HC, Drabkin H, Ngu H, Sackman M, Fournier C, Haggett J, Blake JA, Bianchi DW, Slonim DK. DFLAT: functional annotation for human development. *BMC Bioinformatics*, Feb 7;15:45, 2014.

Hui L, Slonim DK, Wick HC, Johnson KL, Bianchi DW. Novel neurodevelopmental information revealed in amniotic fluid supernatant from fetuses with trisomies 18 and 21. *Human Genet.*, Jul. 2012.

Hui L, Slonim DK, Wick HC, Johnson KL, Bianchi DW. The amniotic fluid transcriptome: a source of novel information about human fetal development. *Obstetrics and Gynecology*, Jan 119(1):111-8, 2012.

Noto KN, Brodley C, Slonim DK. FRaC: A feature-modeling approach for semi-supervised and unsupervised anomaly detection. *Data Mining and Knowl. Disc.*, 25(1):109-133, 2012.

Andrew D. Fox, Benjamin J. Hescott, Anselm Blumer, and Donna K. Slonim. Connectedness of PPI network neighborhoods identifies regulatory hub proteins. *Bioinformatics*, Apr 15;27(8):1135-42, 2011.

Koide K, Slonim DK, Johnson KL, Tantravahi U, Cowan JM, Bianchi DW. Transcriptomic analysis of cell-free fetal RNA suggests a specific molecular phenotype in trisomy 18. *Hum Genet.*, 129(3):295-305, Mar. 2011.

Keith Noto, Carla Brodley, and Donna K. Slonim. Anomaly detection using an ensemble of feature models. *Int'l Conf on Data Mining*, pp. 953-8, Sydney, Australia, Dec. 2010.

Andrew D. Fox, William A. Baumgartner Jr., Helen Johnson, Lawrence E. Hunter and Donna K. Slonim. Mining protein-protein interactions from GeneRIFs with OpenDMAP. *Lecture*

Notes in Computer Science, 6004:43-52, May, 2010.

Teresa M. Przytycka, Mona Singh, and Donna K. Slonim. Toward the dynamic interactome: It's about time. *Brief Bioinform* Jan;11(1):15-29, 2010.

Donna K. Slonim*, Keiko Koide*, Kirby L. Johnson, Umadevi Tantravahi, Janet M. Cowan, Zina Jarrah, and Diana W. Bianchi. Functional genomic analysis of amniotic fluid cell-free mRNA suggests that oxidative stress is significant in Down syndrome fetuses. *Proc. Natl. Acad. Sci. USA* 106(23):9425-9, June, 2009.

Andrew Fox, Daniel Taylor, and Donna K. Slonim. High throughput interaction data reveals degree conservation of hub proteins. *Pacific Symposium on Biocomputing* 14:391-402, 2009.

Jill L. Maron, Kirby L. Johnson, Donna K. Slonim, Chaoqiang Lai, Marco Ramoni, Zina Jarrah, Zinger Yang, and Diana W. Bianchi. Gene expression analysis in pregnant women and their infants identifies unique fetal biomarkers that circulate in maternal blood. *Journal of Clinical Investigation*, 117(10):3007-19, October, 2007.

Margot O'Toole, Derek B. Janszen, Donna K. Slonim, Padmalatha S. Reddy, Debra K. Ellis, Holly M. Legault, Andrew A. Hill, Maryann Z. Whitley, William M. Mounts, Krystyna Zuberek, Frederick W. Immermann, Ronald S. Black, and Andrew J. Dorner. Risk Factors Associated with Beta-Amyloid(1-42) Immunotherapy in Pre-immunization Gene Expression Patterns of Blood Cells. *Archives of Neurology*, 62:1531-36, October, 2005.

Donna K. Slonim. From patterns to pathways: gene expression data analysis comes of age. *Nature Genetics*, 32(S):502-508, December, 2002.

Jane E. Staunton, Donna K. Slonim, Hilary A. Collier, Pablo Tamayo, Michael J. Angelo, Johnny Park, Uwe Scherf, Jae K. Lee, William O. Reinhold, John N. Weinstein, Eric S. Lander, Todd R. Golub. Chemosensitivity prediction by transcriptional profiling. *Proc. Natl. Acad. Sci. USA*, 98(19):10787-10792, September, 2001

Atul J. Butte, Pablo Tamayo, Donna Slonim, Todd R. Golub, Isaac S. Kohane. Discovering functional relationships between RNA expression and chemotherapeutic susceptibility using relevance networks. *Proc. Natl. Acad. Sci. USA* 97(22):12182-12186, October, 2000.

Todd R. Golub*, Donna K. Slonim*, Pablo Tamayo, Christine Huard, Michelle Gaasenbeek, Jill P. Mesirov, Hilary Collier, Mignon L. Loh, James Downing, Mark Caligiuri, Clara Bloomfield, and Eric S. Lander. Molecular classification of cancer: Class discovery and class prediction by gene expression monitoring. *Science*, 286:531-537, October, 1999.

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Thomas J. Hudson, Lincoln Stein, Sebastian Gerety, Junli Ma, Andrew Castle, James Silva, Donna K. Slonim, *et al.* An STS-based map of the human genome. *Science*, 270(5244):1945-1954, Dec., 1995.

* These authors contributed equally to this work.